REMARKS

I. Status of the Application

Claims 1-22 are currently pending in the application. Claims 18-22 stand withdrawn as non-elected species due to previous restriction requirements. Claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over GB 1,004,352 ("GB'352") in view of US 4,517,069 to Harney et al. ("Harney").

Applicants have amended the claims to more clearly define and distinctly characterize Applicants' novel invention. Specifically, claims 1-3 have been amended to recite the limitations of multiple dependent claim 6, and claim 6 has been canceled. Support for this amendment can be found in the specification at page 5, lines 13-19, which discloses that the sample to by pyrolyzed or sintered is placed in an oven, while the metal hydride is present in a different location of the same oven. Claim 3 has also been amended to add the step of applying the slurry of metal particles to the metal substrate. Support can be found at page 8, line 28 to page 9, line 6 and also in Example 3, which discloses that a slurry of metal particles is applied to the metal substrate prior to applying the impregnated foam. Claim 3 has also been amended to rephrase the term "pasting" as contacting the impregnated foam with the metal substrate so as to adhere the foam onto the substrate. One of ordinary skill in the art would understand that "contacting so as to adhere" is an equivalent expression for the term "pasting." Support can also be found in Example 3 at page 15, lines 19-21, which discloses contacting the impregnated foam with a metal alloy plate (substrate) to form a plate/foam assembly. New independent claim 23 has been added to claim a method for providing a porous metal coating to a metal substrate by adhering and sintering an already sintered porous metal article onto a metal substrate. Support

for the subject matter of claim 23 is found in Examples 1 and 2, which teach methods for providing a sintered porous metal article. Support is also found in Example 3, which teaches methods for providing a porous metal coating to a metal substrate by applying and sintering a polymeric foam impregnated with metal particulate slurry onto a metal substrate. Reading the specification as a whole, Applicants respectfully submit that the skilled artisan would understand from the disclosure that one could adhere a sintered porous metal article to a metal substrate using a slurry of metal particles between the sintered porous metal article and the metal substrate as claimed.

Applicants respectfully submit that the amendments herein present no new matter. Applicants respectfully request entry and consideration of the foregoing amendments and reconsideration of the application in view of the following remarks, which are intended to place this case in condition for allowance.

II. Claims 1-17 Are Not Obvious over GB '352 in View of Harney

At page 2, paragraph 3 of the instant Office Action, claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over GB'352 in view of Harney. The Examiner is of the opinion that the claimed methods are obvious over the combined teachings of GB'352 and Harney. Applicants respectfully traverse the rejection based on the amended claims. A *prima facie* case of obviousness requires three showings:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Manual of Patent Examining Procedure, 8th ed., § 2142. These requirements of a *prima facie* case of obviousness are not met for this rejection under 35 U.S.C. § 103(a).

Amended independent claim 1 is directed to a method for preparing a porous body, suitable for the production of a porous metal article, comprising the steps of providing a polymeric foam, which foam is impregnated with a slurry of metal particles, drying the impregnated foam, placing the impregnated foam in an environment for carrying out pyrolysis, placing metal hydride particles in a different location of the same environment, and pyrolyzing the impregnated foam in the presence of the metal hydride particles. Amended independent claim 3 directed to a method for providing a porous metal coating to a metal substrate comprising the steps of providing a polymeric foam, which foam is impregnated with a slurry of metal particles, pasting the impregnated foam onto the metal substrate, drying the impregnated foam, placing the impregnated foam pasted onto the substrate in an environment for carrying out pyrolysis and sintering, placing metal hydride particles in a different location of the same environment, pyrolysis in the presence of the metal hydride particles, followed by sintering in the presence of the metal hydride particles. The metal hydride (e.g. titanium hydride) in the claimed invention is used as a competitive scavenger (getter) during pyrolysis and sintering, but is **not** a component of or even in contact with the metal particle impregnated foam during pyrolysis, or with the porous metal body during sintering. The metal hydride is more reactive than the base metal, so it minimizes the oxidation of the base metal under elevated temperatures, improving the resulting chemical and mechanical properties of the final porous metal bodies and coatings, particularly with regard to implantable medical devices.

The Examiner asserts that GB'352 discloses the invention substantially as claimed. The Examiner admits that GB'352 does not specifically disclose a metal hydride, particularly

titanium hydride. The Examiner then asserts that it would be obvious to combine teachings with Harney, which discloses titanium hydride as a reducible metal compound used to form porous bodies, to arrive at the claimed invention. Applicants respectfully disagree. Harney fails to teach the steps of placing a polymeric foam impregnated with a slurry of metal particles in an environment for carrying out pyrolysis and/or sintering, and also placing metal hydride particles in a **different location** of the same environment. Harney specifically teaches incorporating titanium hydride particles as a slurry into an organic pore-former, then pyrolysis to remove the organic pore-former, and sintering to reduce the porous titanium hydride body to a porous titanium body (col. 5, lines 8-48). According to the disclosure of Harney, titanium hydride is not in a different location from the metal particle impregnated foam during pyrolysis because it is present in the slurry that impregnates the foam. Titanium hydride is also not in a different location from the porous body during sintering because titanium hydride makes up the porous body until it reduced to titanium during the sintering process. Thus, the combination of GB'352 and Harney fails to teach each and every limitation of independent claims 1 and 3 and their dependent claims. In addition, neither GB'352 nor Harney suggests the desirability to modify their teachings by pyrolyzing or sintering their metal particle impregnated foams in the presence of a metal hydride scavenger placed in a different location of the same pyrolysis or sintering environment, in order to prevent undesired formation of metal oxides or metal nitrides in the porous metal body.

Neither GB'352 nor Harney teaches a method for providing a porous metal coating on a metal substrate, as in claim 3. GB'352 does not teach forming a porous metal coating on any type of substrate. Harney fails to teach metal substrates. Harney teaches forming a porous titantium hydride or titanium coating on an inorganic refractory material pore-former substrate

(abstract). Harney specifies that the refractory material is selected from the group consisting of alumina, zirconia and siliceous compounds, generally called ceramic foams (col. 5, lines 49-61). Harney also specifies that the inorganic pore-former substrate may be an open-cell refractory material, ceramic or glass foam, or an open cell foam of an alkali metal silicate or an alkaline earth metal silicate (col. 9, lines 26-32). None of the disclosed substrates is a metal. Thus, neither reference teaches each and every limitation of independent claim 3 and its dependent claims.

The Examiner asserts that methylcellulose, as a particular kind of the cellulose foam generally disclosed by GB'352, is an equivalent to polyurethane foam. However, Applicants teach and claim (claim 12) methylcellulose as a binder in the metal particle slurry, and not as a polymeric foam used as a template for the porous metal body. The binders of claim 12 of the invention are chosen for properties that enable a water-based slurry of metal powder to coat the polyurethane foam. These binders also have different thermal degradation profiles in relation to the polyurethane foam template. This enables the structure of the foam to be maintained as the binder and foam are removed during pyrolysis. This bimodal binder system is not described in GB'352. Therefore, it is not obvious to substitute methylcellulose for polyurethane foam.

For the above reasons, both GB'352 and Harney fail to teach each and every limitation of independent claims 1 and 3 and their dependent claims. GB'352 and Harney also fail to suggest the desirability to modify their teachings to produce the claimed invention. As a *prima facie* case of obviousness cannot be made, Applicants respectfully request withdrawal of the U.S.C. § 103(a) rejection and allowance of claims 1-17.

III. Conclusion

Having addressed all outstanding issues, Applicants respectfully request reconsideration and allowance of the case. To the extent the Examiner believes that it would facilitate allowance of the case, the Examiner is requested to telephone the undersigned at the number below.

Respectfully submitted,

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John P. Iwanicki, Reg. No. 34,628
BANNER & WITCOFF, LTD.
28 State Street, 28th Floor
Boston, MA 02109
(617) 720-9600